



Space Day: Prospecting for Knowledge

23 - Paperbag Space Helmets - Teacher Page

Purpose: To discover the effects of a light filter and its application to the study of astronomy.

Materials:

- large grocery bag (large enough to fit over a student's head)
- 4"x 5" piece of red filter ("see-through", red report covers work well)
- 1" duct tape
- scissors
- colored markers
- "secret message" coloring page

Background: It is possible to see a range of phenomena in the night sky using only the naked eye. Stars, planets, moons, meteors, and satellites are all visible from earth. Astronomers use various sky watching tools to see these things more clearly. Light filters can be used to "block out" some phenomena in order to view another particular phenomena more clearly. For example, astronomers often use filters to view pictures of stars and planets so they can see details not possible with the eye alone.

This activity: Using a red filter and grocery bag, students will construct a paperbag space helmet that will enable them to "read" secret messages. In this activity the students will learn that the color filter will allow them to see certain colors, but not others. Because of this, the filter will enable them to see a "secret message" that our eyes alone do not allow us to see.

Preparation: Materials must be gathered. Red, see-through report covers purchased at a stationery store work well and are the most inexpensive "filters" to use in this activity. (Arvey's sells these in quantity as "slide lock report covers".) Four filters can be obtained from one cover. A tagboard pattern can be created so that the students will only need to trace the areas to cut out on their grocery bags.

In class: Students will first construct a paperbag helmet using the materials listed. They will also need to color a "secret message". The message can then be read through the filter on the helmet.

Reference: Adapted from: LHS Gems, "Color Analyzers", 1989.



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23 - Paperbag Space Helmets - Student Page

Materials:

- large grocery bag (large enough to fit over a student's head)
- 4"x 5" piece of red filter ("see-through", red report covers work well)
- 1" duct tape
- scissors
- colored markers
- "secret message" coloring page

Procedure:

1. Use scissors to cut a 3-3/4" x 4-3/4" rectangular opening in the grocery bag (approximately 2" from the bottom end of the bag). Cut a curved piece from each side of the opening of the bag so it will fit more comfortably over your shoulders.
2. Tape the red filter over this opening with duct tape.
3. Use colored markers to decorate your "space helmet".
4. Color the "secret message" page.
5. Put on your space helmet to "read" the message.